

Harvard Forest Data Archive HF063-01

Data File:

Name = hf063-01-exchange.csv  
Description = CO2 exchange  
Rows = 8717 Columns = 26  
MD5 checksum = 7539f8f305e946ef13ced3107125f49c

Variables:

datetime = date and time  
year = year  
doy = Julian date or day of year (nominalDay)  
doy.dec = Julian date or day of year with HOURS converted to a decimal fraction (nominalDay)  
ac.solar = above-canopy total solar radiation measured with a LI-200S pyranometer sensor. It was unshaded except for brief periods (less than 1 hour) in late evening in spring and fall. (kilowattPerMeterSquared)  
ac.par = Above-canopy photosynthetically active radiation measured by a LI-190S quantum sensor. It was shaded only during the same evening periods as the pyranometer sensor. (micromolePerMeterSquaredPerSecond)  
wind = wind speed at 24.5m height, measured by a cup anemometer (RM Young model 12102-D) with a stall speed of 0.2 m s<sup>-1</sup>. (metersPerSecond)  
airt = above-canopy air temperature measured by a shaded thermocouple (celsius)  
rh = above-canopy relative humidity measured by a shaded Vaisala(r) humidity sensor (number)  
uc.par = average PAR at 12 locations in the upper canopy, measured by Hamamatsu photodiodes (model GAASP-118) affixed parallel to the surface of randomly selected shoots on the N, E, S and W sides of the three trees to the E, S and W of the tower. (micromolePerMeterSquaredPerSecond)  
mc.par = average PAR at 9 locations in the middle canopy. Measured similarly to UC PAR except that there were no measurements on the sides of trees closest to the canopy access tower due to shading by the tower. (micromolePerMeterSquaredPerSecond)  
lc.par = average PAR at 9 locations in the lower canopy. Measured similarly to MC PAR. (micromolePerMeterSquaredPerSecond)  
soilt = average soil temperature at 10 cm depth measured at five randomly chosen locations (celsius)  
grav.soil.water = gravimetric soil water content (dimensionless)  
uc.wood.temp = sapwood temperature at about 1 cm depth, measured 20-40 cm from the tree bole on the upper side of 8 branches near the middle of the upper canopy (celsius)  
mc.wood.temp = sapwood temperature at about 1 cm depth, measured 20-40 cm from the bole on the upper sides of 8 branches near the middle of the middle canopy (celsius)  
lc.wood.temp = sapwood temperature at about 1 cm depth, measured 20-40 cm from the bole on the upper sides of 8 branches near the middle of the lower canopy (celsius)

bole.wood.temp = sapwood temperature at 4 cm depth in tree boles,  
measured on both the north and sides at about 1.5 m height (celsius)

soil.resp = estimated from measurements at 12 randomly chosen  
locations within 50m of the canopy-access tower  
(micromolePerMeterSquaredPerSecond)

foliage.resp = rates estimated separately for upper and lower canopy  
foliage. Middle canopy estimate was the average of these  
(micromolePerMeterSquaredPerSecond)

seedcone.resp = seed cone respiration estimate  
(micromolePerMeterSquaredPerSecond)

wood.resp = estimated from wood temperatures and measurements of  
respiration in all canopy layers and in boles  
(micromolePerMeterSquaredPerSecond)

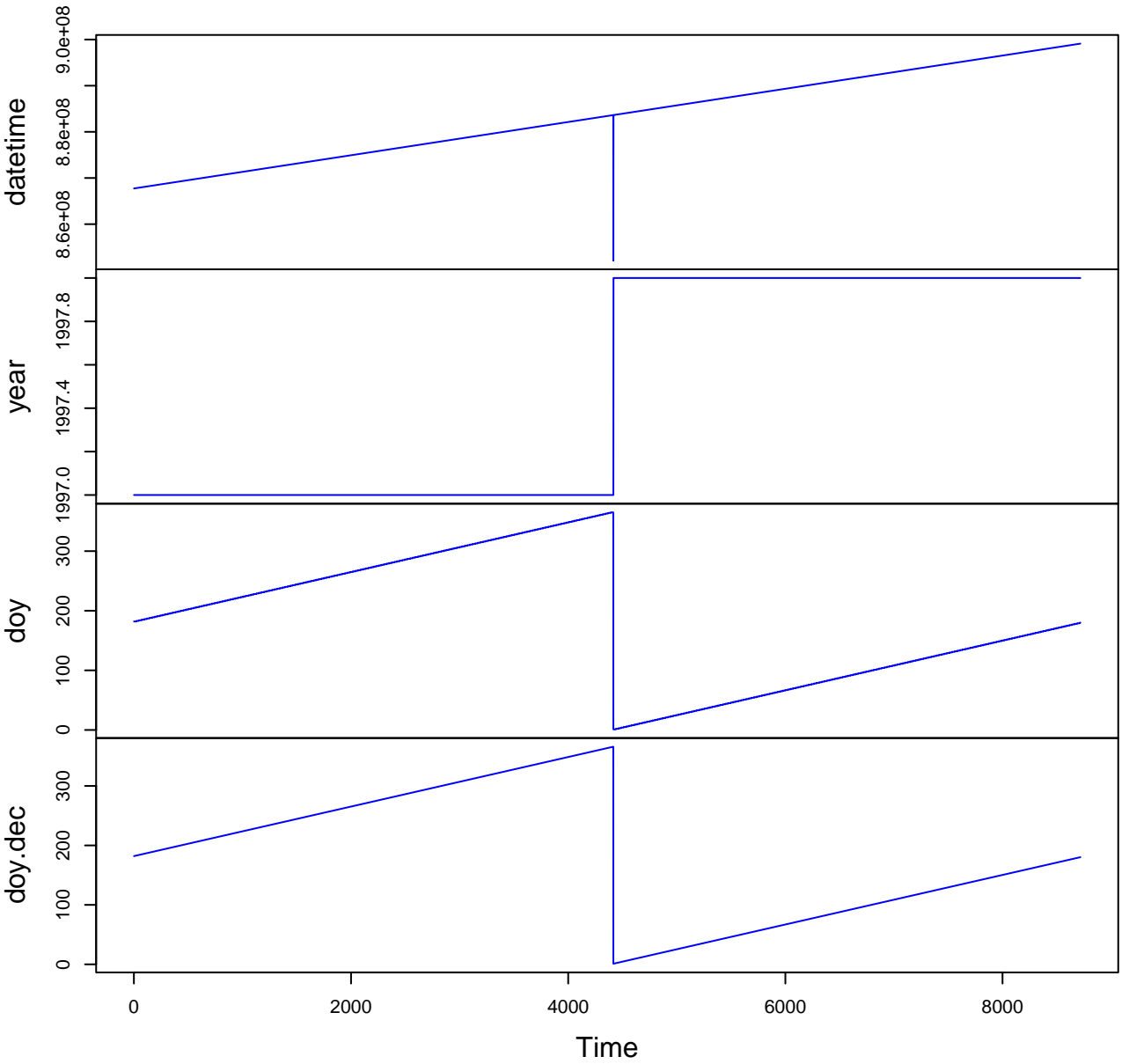
total.resp = sum of other respiration estimates  
(micromolePerMeterSquaredPerSecond)

net.photosynthesis = rates estimated separately for upper and lower  
canopy foliage. Middle canopy estimate is the average of these.  
(micromolePerMeterSquaredPerSecond)

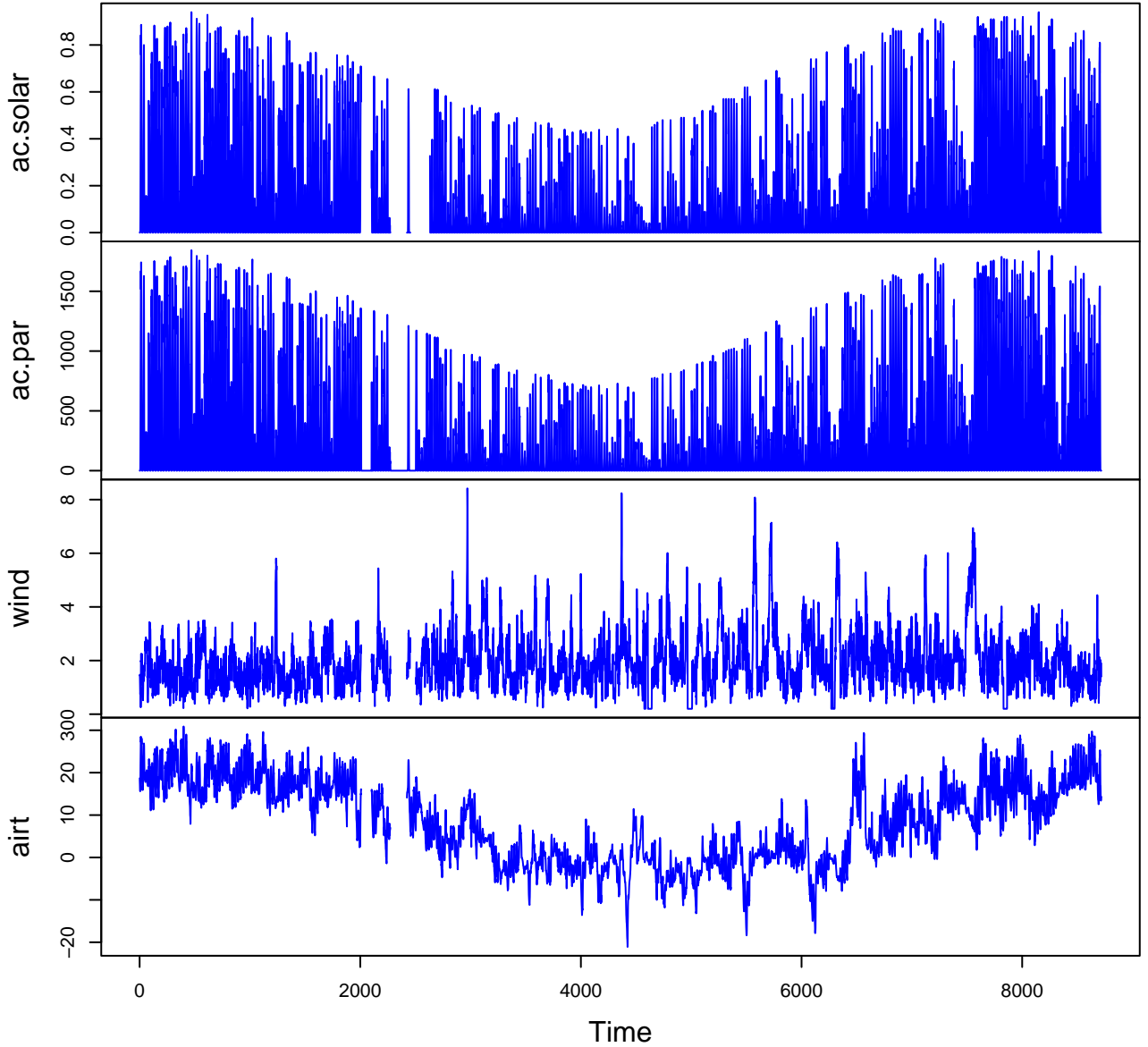
nee = total.resp minus net.photosynthesis  
(micromolePerMeterSquaredPerSecond)

Variable	Min	Median	Mean	Max	NAs
datetime	1997-01-01T00:00		1998-06-29T05:00		0
year	1997.000	1997.000	1997.493	1998.000	0
doy	1.000	184.000	183.012	365.000	0
doy.dec	1.000	184.380	183.492	365.960	0
ac.solar	0.000	0.005	0.143	0.940	421
ac.par	-0.330	5.682	265.476	1843.000	0
wind	0.200	1.720	1.929	8.420	295
airt	-21.100	7.900	8.102	30.900	244
rh	3.330	71.300	68.544	102.200	948
uc.par	-0.250	5.910	124.140	932.420	295
mc.par	-0.960	3.010	75.937	867.210	330
lc.par	-0.720	0.810	21.248	454.310	192
soilt	-0.550	6.670	7.274	19.820	150
grav.soil.wa	65.000	67.820	67.656	69.700	8288
uc.wood.temp	-20.610	8.840	8.799	32.410	1
mc.wood.temp	-19.920	8.430	8.375	30.240	0
lc.wood.temp	-19.550	8.170	8.146	29.680	0
bole.wood.te	-10.710	0.400	3.958	22.110	2778
soil.resp	0.280	1.300	1.942	8.220	149
foliage.resp	-0.020	0.020	0.372	3.330	228
seedcone.res	0.000	0.000	0.233	3.750	4416
wood.resp	0.110	0.460	0.649	3.140	194
total.resp	0.360	1.940	3.045	14.090	0
net.photosyn	0.000	0.000	3.554	22.980	350
nee	-21.350	0.720	-0.491	14.080	350

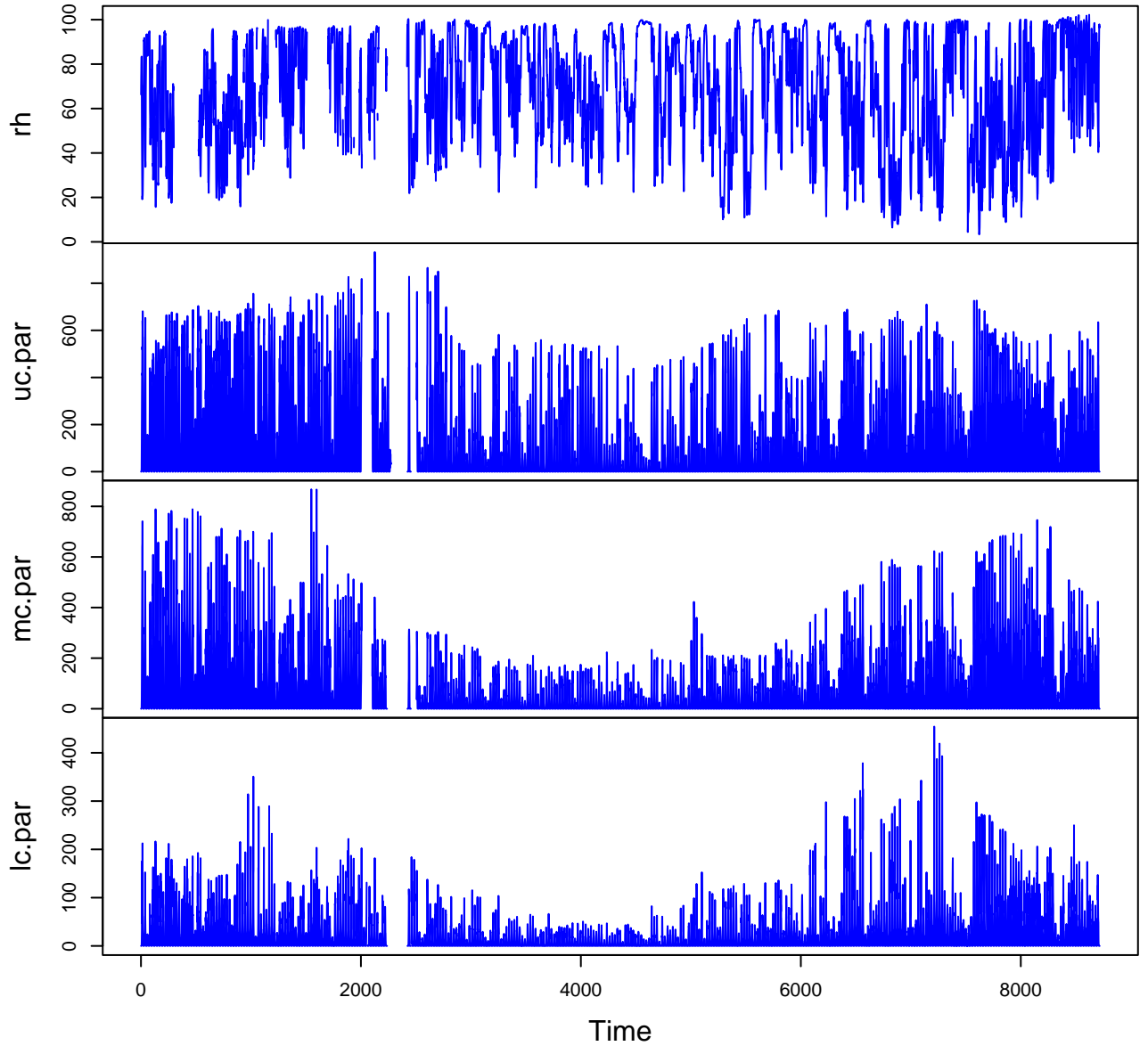
# HF063-01 Plot 1



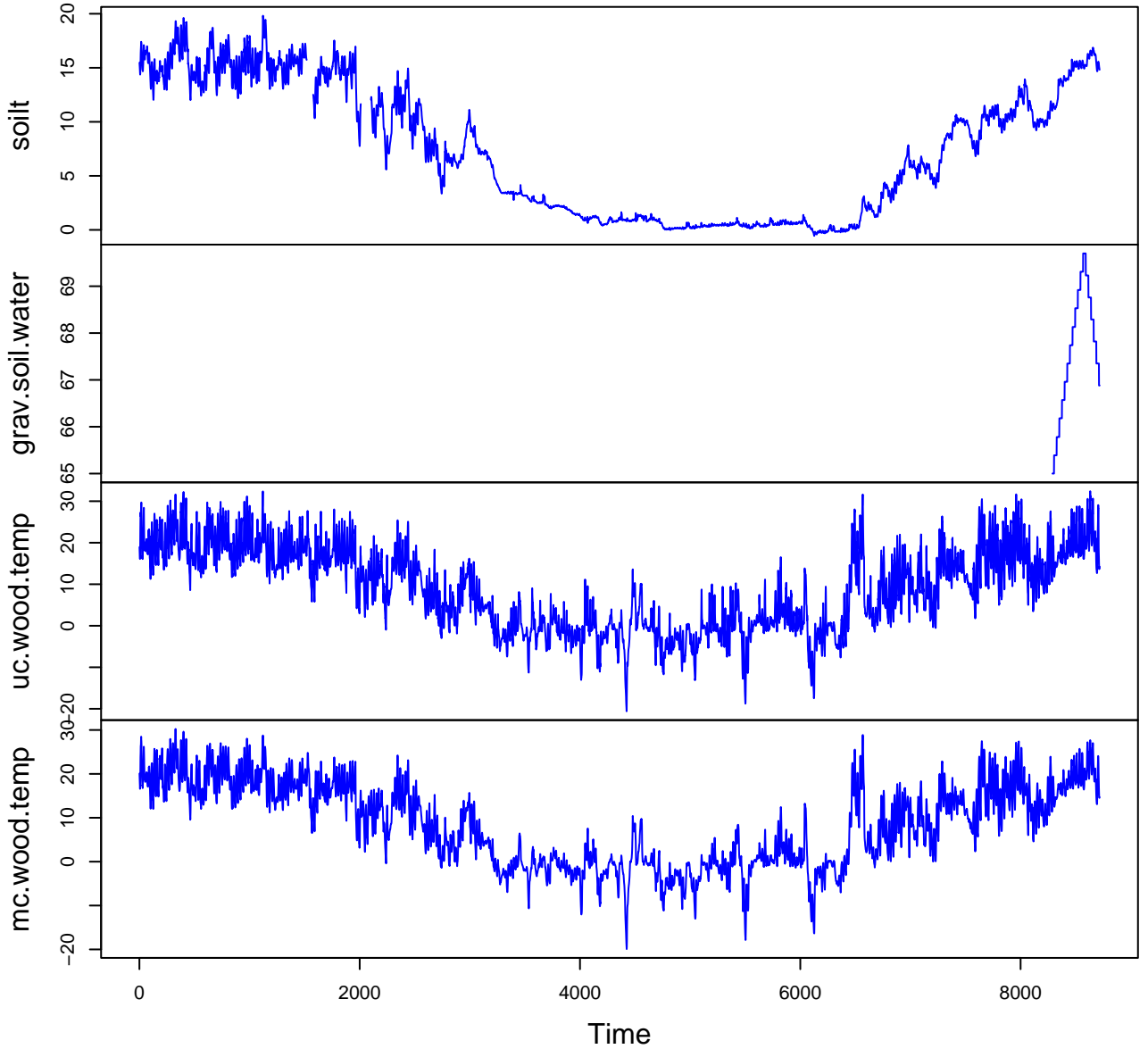
# HF063-01 Plot 2



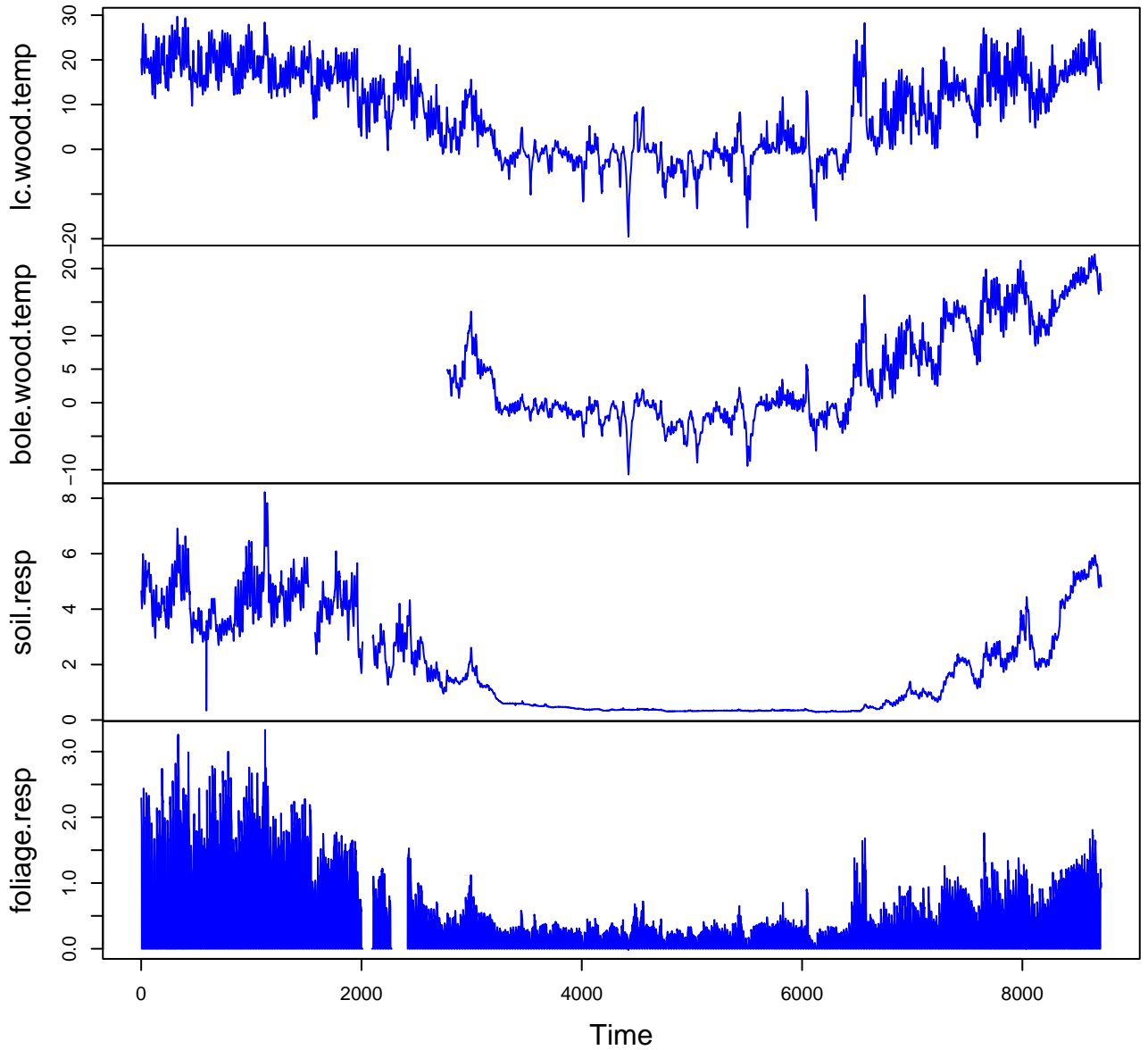
# HF063-01 Plot 3



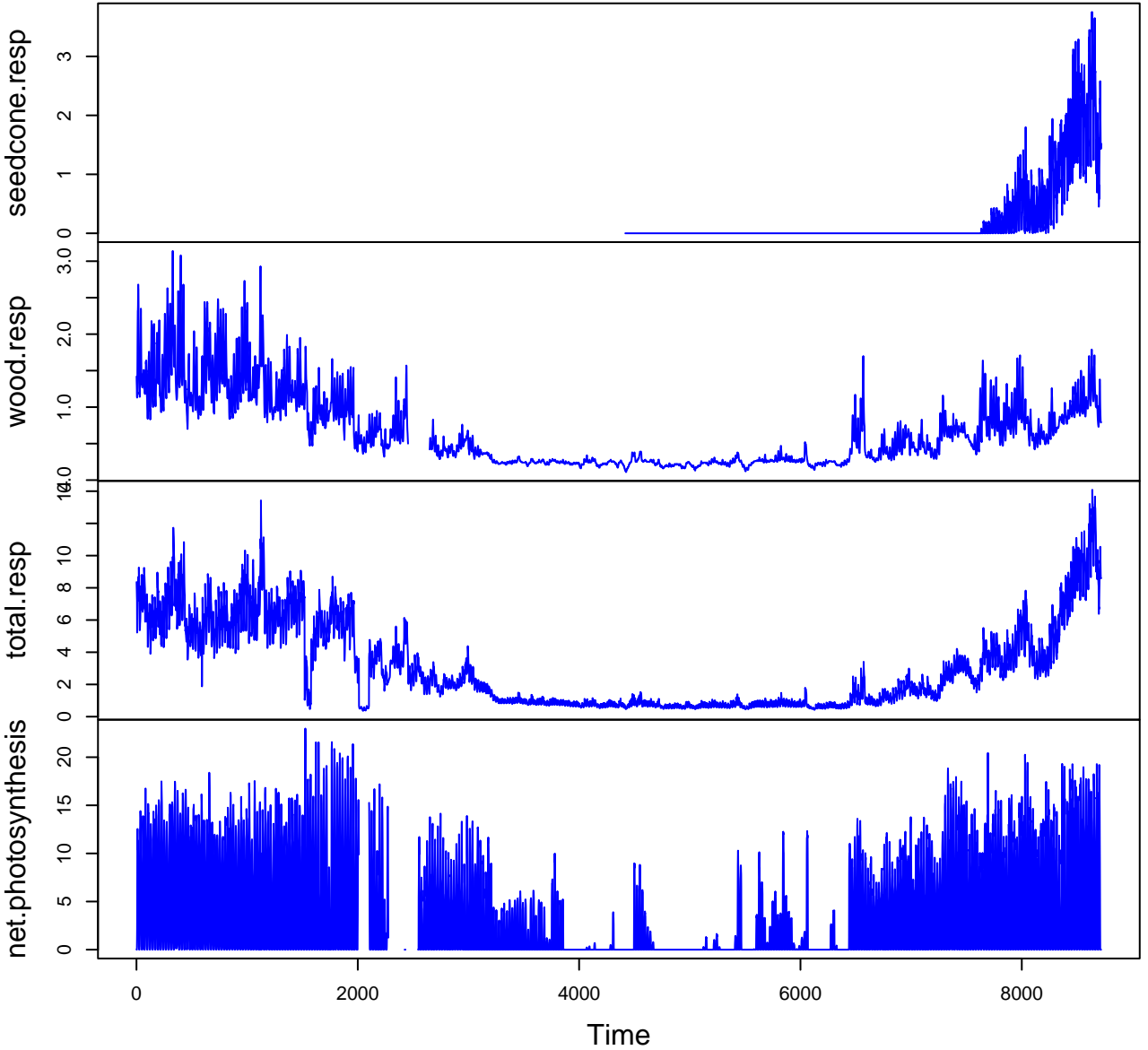
# HF063-01 Plot 4



# HF063-01 Plot 5



# HF063-01 Plot 6



# HF063-01 Plot 7

